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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

09/917,419

07/30/2001

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TI-31306

1132

7590

09/21/2004

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EXAMINER

CAO, PHAT X

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,419

Applicant(s)

EFLAND ET AL.

Examiner

Phat X. Cao

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AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 27-29 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-26 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams et al (US. 5,665,996).

Williams (Fig. 7A) discloses a semiconductor integrated circuit comprising: contact pads 76 located over active components and including electro-plated portions 76D of gold (column 6, lines 1-3); and the position of the pads selected to provide control and distribution of power to the active components below the pads and to minimize the distance for power delivery between a selected pad 76 and one or more corresponding active components (column 3, lines 26-30). Williams further discloses a metallization layer 73 between the contact pads 76 and the active components, the metallization layer 73 patterned and vertically coupled upward to the contact pads 76 and vertically coupled downward to the active components; and a wire bonded to the bonding pad 76 at a desired location for reducing the resistance of the active components

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(column 3, lines 26-30). Therefore, the maximizes dissipation of thermal energy would be inherently released by the active components.

Williams does not specifically disclose that the contact pads 76 function as stress absorbing (claim 1). However, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Therefore, the contact pads 76 would inherently function as stress absorbing because they are made of nickel which is the same material as claimed contact pads.

3. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato (US. 5,739,587).

Sato (Fig. 13) discloses a semiconductor device comprising multilayer contact pads 100 positioned over active components; and at least one metallization layer 110 between the contact pads 100 and the active components, the metallization layer 110 patterned and vertically coupled upward to the contact pads 100 and vertically coupled downward to the active components.

Sato does not specifically disclose that the contact pads 100 function as stress absorbing (claim 1). However, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Therefore, the contact pads 100 would inherently function as stress absorbing because they are made of aluminum which is the same material as claimed contact pads. Regarding process limitation (electro-plated), this would not carry patentable weight in a claim drawn to structure because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US. 5, 739,587).

Sato (Figs. 13-14) discloses a semiconductor integrated circuit comprising: a laterally organized power transistor; an array of power supply contact pads 100 distributed over the power transistor; the contact pads 100 characterized by multiple metal layers including a thin top layer 102; means for providing a distributed, predominantly vertical current flow from the contact pads 100 to the transistor; and means for connecting a voltage to each of the contact pads.

Sato does not disclose a power source applied to each of the contact pads. However, it would have been obvious to apply a power source to each of the contact pads 100 of Sato in order to supply a voltage source to the source/drain of the power transistor. Regarding process limitation (electro-plated), this would not carry patentable weight in a claim drawn to structure because distinct structure is not necessarily produced. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al (US. 5,665,996).

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Williams (Fig. 7A) discloses a semiconductor integrated circuit comprising: a laterally organized power transistor; an array of contact pads 76 distributed over the power transistor, the contact pads 76 characterized by multiple metal layers including an electro-plated gold layer 76D; and means for providing a distributed, predominantly vertical current flow from the contact pads to the transistor.

Williams does not disclose a power source applied to each of the contact pads 76.

However, it would have been obvious to apply a power source to each of the contact pads 76 of Williams in order to supply a voltage source to the source/drain of the power transistor.

Allowable Subject Matter

7. Claims 6-26 are allowed.

Response to Arguments

8. Applicant argues that Williams does not teach the metallization layer of the amended claims.

This argument is not persuasive because William's Fig. 7A clearly discloses the metallization layer 73 having the structure of the amended claims.

Applicant argues that Sato's contact pads do not include a layer formed by electro-plated process.

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This argument is not persuasive because the process limitation of "electro-plated" does not lend patentability to the claims drawn to the structure. However, William's Fig. 7A does teach the contact pads including a gold layer 76D formed by electro-plated process.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (571) 272-1703. The examiner can normally be reached on Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PC
September 18, 2004


PHAT X. CAO
PRIMARY EXAMINER